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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/006,597	12/04/2001	Christoph Hilgert	22750/514	3533

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EXAMINER

KYLE, MICHAEL J

ART UNIT	PAPER NUMBER
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3676

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/006,597

Applicant(s)

HILGERT, CHRISTOPH

Examiner

Michael J Kyle

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17,18,20-27 and 30-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-27 and 29 is/are allowed.
- 6) ☒ Claim(s) 17,18,20-24 and 30-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date: 12232004
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 17, 20, 28, and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al (U.S. Patent No. 5,582,415) in view of Jacobs (U.S. Patent No. 4,140,323) and Ueta (U.S. Patent No. 5,230,521). Yoshida et al discloses a flat gasket comprising at least one metal sheet (45) which is provided with a coating of an elastomer film (30) at least on sides facing outward in at least one sealing area and which has an edge area formed by the outer contour adjacent to at least one peripheral self contained cavity (shown in figure 17, area under bead 16). Yoshida et al further discloses the cavity to be enclosed by at least one bead (16) of the metal sheet (45) and a second metal sheet (44) bridging the bead. However, Yoshida et al does not disclose a cavity being completely filled with a hydraulic fluid. The examiner considers the two metal sheets (44, 45) to be permanently joined together because the stopper (46) appears to hold the two metal sheets together. However, to more clearly show two metal sheets permanently jointed together, the examiner relies on the teachings of Ueta.

3. Jacobs teaches a gasket having a cavity (34) that is completely filled with a hydraulic fluid (36) in order to prevent the embossment (around cavity 34) from flattening out and losing much of its intended sealing capacity. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yoshida et al as taught by Jacobs in

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order to prevent the bead from flattening out and losing sealing capacity. Jacobs describes the filler (36) in column 2, lines 52-64, as being Sylgard 187, which, before it cures, is in fluid form. Because it is in fluid form, in the gasket, for the time before it cures, this meets the limitation of a "hydraulic fluid" in the cavity. Examiner refers to Jacobs column 4, lines 6-14. Jacobs describes a process of silk screening the sealant onto a gasket, and refers to U.S. Patent No. 3,477,867, to Hillier, for further detail of the process. Examiner cites Hillier as evidence of this process. In general, the silk screening process involves depositing a liquid sealant onto a gasket, and curing the sealant. This process alone does not necessarily occur in a bead. However, Jacobs states that the sealant may be silk screened "directly into the indentations of the recesses of the embossments" (column 4, lines 12-14). This clearly discloses that a curable liquid fills the cavity, or recess 34, and is cured in the recess.

4. Ueta shows a metallic gasket with a cavity enclosed by at least one bead (3) of a first metal sheet (1-1) with a second metal sheet (1-2) bridging the bead. Ueta teaches the two metal sheets (1-1, 1-2) to be permanently jointed together at joint locations (8) to prevent local increases in pressure that are caused by stoppers, which helps maintain the roundness in bores (column 1, lines 48-61). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Yoshida et al as taught by Ueta by replacing the stoppers of Yoshida et al with the joints of Ueta to prevent local increases in pressure and in turn, better maintain the roundness of the bore.

5. With respect to claim 20, Yoshida et al discloses that the metal sheet (45) and the second metal sheet (44) are joined in a fluid tight manner (column 5, lines 6-10). Yoshida et al states

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that coating layer (31), between the metal sheets, “can prevent coolant and hot combustion gas from leaking” (column 5, lines 9-10). The examiner considers this to be fluid tight.

6. With respect to claims 30-32, Yoshida et al discloses the cavity to be filled with a polymer material that is plastically or elastically deformable and that the polymer material is silicone. Yoshida et al also discloses at least two flat gaskets (figure 17).

7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Udagawa et al (U.S. Patent No. 5,054,795) in view of Yoshida et al, Jacobs, and Ueta. Udagawa et al discloses a metal sheet (33) with an edge area (34) formed by a cylinder bore, the edge area adjacent to at least one self contained cavity (37), wherein the cavity is formed by the metal sheet (33) being flanged back onto, and joined to itself in the edge area. Udagawa et al does not disclose the metal sheet to be provided with an elastomer film on the sides facing outward from the cavity, or for the cavity to be completely filled with a hydraulic medium. Udagawa et al also fails to disclose the metal sheet that is flanged back onto itself to be permanently connected to itself.

8. Yoshida et al teaches a metal sheet (45) with a cavity formed therein (16), the cavity provided with an elastomer film (30, 31) on the sides facing outward from the cavity so as make the sides facing outward from the cavity heat resistant and wear resistant (column 5, lines 8-9). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Udagawa et al as taught by Yoshida et al in order provide a heat and wear resistant surface.

9. Jacobs teaches a gasket having a cavity (34) that is completely filled with a hydraulic medium (36) in order to prevent the embossment (around cavity 34) from flattening out and

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losing much of its intended sealing capacity. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the cavity of Udagawa et al et al by completely filling it with a hydraulic medium as taught by Jacobs in order to prevent the bead from flattening out and losing sealing capacity by improving the resiliency of the cavity so that when a load it is removed the cavity will be more easily returned to its original shape.

10. Ueta shows a metallic gasket with a cavity enclosed by at least one bead (3). The bead is formed by permanent connection (8) between sheets. Ueta teaches two metal sheets (1-1, 1-2) to be permanently connected together at joint locations (8) to prevent local increases in pressure that are caused by stoppers, which helps maintain the roundness in bores (column 1, lines 48-61). Additionally, Ueta discusses that higher performance and weight saving engines of smaller size have been in great demand (column 1, lines 31-61). It follows, that to achieve this, one would eliminate stoppers and replace them with the joints of Ueta, which are smaller than a conventional stopper, to maintain the shape of the bead. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify flange and bead of Udagawa permanently connecting the portion of the sheet metal that is flanged back onto itself, to itself, to prevent local increases in pressure and in turn, better maintain the roundness of the bore, and reduce the overall size of the gasket, therefore allowing for use in smaller engines.

11. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al in view of Jacobs and Ueta as applied to claim 17 above, and further in view of Maeda et al (U.S. Patent no. 6,145,847). Neither Yoshida et al, Jacobs, nor Ueta disclose the second metal sheet to have a second bead in the area of the first bead of the first metal sheet, the second bead

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having a different design from that of the first bead, or the second bead having a profile with a smaller cross section than the first bead.

12. Maeda et al teaches a second metal sheet (2) to have a second bead (5') in the area of the first bead (5), the second bead having a different design from that of the first bead, or the second bead having a profile with a smaller cross section than the first bead (figure 6) in order to enhance sealing performance on the side of the cylinder head in a controlled manner. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the second metal sheet of Yoshida et al, as taught by Maeda et al, in order to enhance sealing performance on the other side of the gasket in a controlled manner.

13. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al in view of Jacobs and Ueta as applied to claim 17 above, and further in view of Pearlstein (U.S. Patent No. 4,428,593). Neither Yoshida et al, Jacobs, nor Ueta disclose the second metal sheet to have second bead in mirror image to the bead of the first metal sheet.

13. Pearlstein teaches a gasket with a second sheet having a second bead in mirror image to the bead of the first sheet, in order to enhance sealing performance on both sides of the gasket. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yoshida et al, Jacobs, and Ueta as taught by Pearlstein in order to enhance sealing performance on both sides of the gasket.

Allowable Subject Matter

14. Claims 25-27 and 29 are allowed.

Response to Arguments

15. Applicant's arguments filed October 7, 2004, have been fully considered but they are not persuasive.

16. Applicant argues that Jacobs does not clearly disclose a hydraulic fluid completely filling the cavity. Examiner respectfully disagrees. As discussed in the body of the rejection, examiner refers to Jacobs column 4, lines 6-14, for a description of the process of filling the bead with a hydraulic fluid. Examiner further cites Hillier as evidence of this process. Jacobs discloses that his invention can be achieved by silk screening the sealant directly into the indentations or recesses (34) of the embossments (column 4, lines 12-14). Hillier discusses the silk screening process as a process where a liquid sealant is deposited onto a gasket in the desired form, and cured. Jacobs explicitly states that this process occurs in the recess. Therefore, before curing, the recess is completely filled with the hydraulic fluid in Jacobs. Figure 3a of Jacobs shows the recess being completely filled.

17. With respect to claim 18, applicant argues that examiner has used hindsight reconstruction in combining Ueta with Udagawa et al, and that examiner has mischaracterized Ueta. Examiner respectfully disagrees. Examiner asserts the Ueta provides sufficient motivation for combining with the base reference. Ueta's connections 8 help prevent local increases in seal pressure and maintain the bore roundness. In addition, Ueta discusses the popularity of smaller high performance engines (column 1, lines 31-61). These smaller engines do not have enough space for conventional stoppers located around the bead to maintain the shape of the bead. It follows, that to reduce the size of a gasket to place in these smaller engines, and to reduce weight, conventional stoppers may be eliminated. This achieved in the overall design of Ueta by

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using certain elastic materials, and the joints 8. Therefore, examiner believes that one having ordinary skill in the art would look to Ueta for a teaching a gasket without a conventional stopper assembly, therefore allowing for a smaller, and in turn, lighter weight gasket, for use in a smaller engine. The elastic material used by Ueta alone, without the joints 8, would not sufficiently maintain the integrity of the bead.

Conclusion

18. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

19. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J Kyle whose telephone number is 703-305-3614. The examiner can normally be reached on Monday - Friday, 8:30 am - 5:00 pm.

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21. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Swann can be reached on 703-306-4115. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

22. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mk



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